

DRAFT

CIGARETTE INGREDIENTS

CAVEAT: The information contained in this paper regarding the use of non-tobacco ingredients in cigarettes is based primarily on information obtained from, and the experience of, cigarette manufacturers in the United States. To the extent that statements regarding the use of non-tobacco ingredients in cigarettes and other tobacco products may be made based on information contained in this paper, be advised that the number, quantity, and type of non-tobacco ingredients added to cigarettes in other parts of the world, and the specific identity of such non-tobacco ingredients, may not correspond to the use and experience of American manufacturers as described in this paper.

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INTRODUCTION

Non-tobacco ingredients are used in the manufacture of cigarettes and other tobacco products for a variety of reasons. For example, these ingredients improve the balance of smoke in terms of taste, flavor, or burning characteristics. Such substances have been added to tobacco since the American Indians introduced smoking to European explorers. In addition, many ingredients added to tobacco also occur naturally in tobacco, such as sugar.

The extent to which non-tobacco ingredients are used to improve properties of tobacco products has varied considerably from country to country and time to time. For example, the "All Virginia" cigarettes of the United Kingdom and the traditional dark, air-cured cigarettes of France made minimal use of non-tobacco ingredients. In contrast, "American-style" cigarettes have generally utilized a wide variety of such substances. Today, however, non-tobacco ingredients are used in the manufacture of virtually all tobacco products throughout the world, including "Virginia" cigarettes.

Non-tobacco ingredients generally fall into four categories -- flavorings, casing materials, humectants, and processing aids. The majority of the ingredients utilized are flavorings which are used to enhance the taste and refine the smoking qualities of cigarettes. As such, flavorings are an integral part of tobacco products. They contribute to the overall impression of the product through their effect on the taste of smoke and the smell of the cigarettes. Flavorings make the major

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contribution to the distinctive taste and aroma of the many individual brands and styles of cigarettes.

Flavorings are generally natural components, such as menthol, spices, and citrus, or synthetics that have been developed to provide the flavor and aroma characteristic of natural materials. Menthol is probably the best known ingredient added to tobacco in cigarettes as a flavoring.

In addition to flavorings, cigarettes also contain casing materials. The precise ingredients used to achieve these desired results depend upon the style of the tobacco product involved in terms of both the tobacco used and delivery constraints which must be achieved. For example, traditional "Virginia" cigarettes contain natural sugars while light air-cured tobaccos (which comprise a significant part of blended cigarettes) have negligible levels. Treatment of these air-cured tobaccos with quantities of sugars and other materials in the form of a "casing" is necessary to develop their character and make for smoother smoke.

Humectants and moisturizers, such as glycerol or propylene glycol, are also used in the manufacture of cigarettes throughout the world. Humectants help to stabilize the tobacco moisture content and smoking properties that may result from fluctuations in temperature and humidity. The need for these ingredients varies both with product type and the circumstances in which the product is marketed.

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Finally, processing aids, such as carbon dioxide, are used for a variety of purposes, including the adjustment of nicotine levels in tobacco, which varies from crop to crop, and the expansion or "puffing" tobacco in the production of lower "tar" and nicotine brands. Processing aids are present in finished cigarettes in trace quantities, if at all.

SUBSTANCES USED IN TOBACCO
MANUFACTURING ARE ALSO USED IN OTHER PRODUCTS

Most of the ingredients used in cigarettes have a long history of use in foods, confections, and beverages and have been reviewed for use in these products by a variety of governmental agencies. For example, most non-tobacco ingredients used in cigarettes manufactured in the United States are included in the lists of substances "Generally Recognized as Safe" (GRAS) as determined by the U.S. Food & Drug Administration (FDA) and by the U.S. Flavor and Extract Manufacturers Association (FEMA).

AMOUNTS OF NON-TOBACCO INGREDIENTS ADDED TO CIGARETTES

The amount of ingredients incorporated into tobacco products vary by weight from a few percent, e.g., casings (such as sugars, cocoa, licorice extract, etc.) and humectants (glycerol, propylene glycol, etc.) used traditionally in blended cigarettes, down to even smaller amounts of flavorings. Flavor substances similar to those used in the manufacture of food and drink, or identical to those found in tobacco itself, are used as "top flavors" in very small amounts. "Top flavors" help give cigarette brands their distinctive taste and aroma and, in the aggregate,

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normally constitute less than one tenth of one percent by weight of the final product.

A small number of casing materials, moisturizers and major flavorings account for the great bulk of ingredients actually in a cigarette. Approximately 25 substances (casings, humectants, and processing aids) comprise over 99% of the total amount, by weight, of non-tobacco ingredients used in the manufacture of cigarettes in the United States. As noted, any ingredients used as processing aids (e.g., carbon dioxide) in a finished cigarette are present only in trace quantities, if at all.

REGULATION OF CIGARETTE INGREDIENTS

The identities of specific ingredients used in cigarettes and the mixture of ingredients comprising the recipe for any individual brand are closely-guarded trade secrets of the manufacturer. These ingredients make major contributions to the taste and appeal of individual brands. Disclosure of the ingredients used in cigarette manufacture could reveal product formulas that have required years of research to develop and cause irreparable damage to the manufacturer in a highly competitive industry. Although a wide range of ingredients used in tobacco products have been listed with governmental agencies and mentioned in other publications, specific recipes are closely-guarded trade secrets.

The issue of the addition of non-tobacco ingredients to tobacco products developed in part as a parallel response to

regulatory activities in other areas such as food additives. Historically, regulation of tobacco ingredients has been a response to interest expressed in some countries over possible adulteration of consumer products in general.

Governmental bodies in several countries, including Great Britain, Canada, and Germany, have reviewed and approved, a large number of non-tobacco ingredients for use in cigarettes. For example, in 1973 the Independent Scientific Committee on Smoking and Health ("ISCSH") was set up in the Great Britain in order to advise the British government on scientific aspects of matters concerning smoking and health, and, in particular, to compile lists (known as the "ISCSH" lists) of allowed and prohibited additives to tobacco products. Non-tobacco ingredients approved for use in tobacco products were those "a) for which after long-term usage no evidence has emerged of their harmful effect (long-term being defined as in constant use for 20 years or more); or b) for which the results of toxicity testing by a manufacturer have been reported to, and have satisfied, the Committee."¹ The ISCSH was charged with specifically prohibiting the use of non-tobacco ingredients which on pyrolysis (or burning) might, in the ISCSH's view, produce a potential or known health risk or for which the results of toxicity testing have not satisfied the ISCSH.

Any company proposing to market a cigarette in Great Britain containing non-tobacco ingredients must abide by the ISCSH guidelines in all respects. The ISCSH periodically reviews and

updates its lists and considers its system to "work well."² According to the fourth and most recent report of the ISCSH, "The Committee will continue to ensure the safety of additives used in all smoked tobacco products."³

Other governmental bodies also maintain lists of substances that may not be added to cigarettes. For example, German ordinances specifically prohibit the use of certain substances as ingredients in tobacco products which, in general, were determined to be harmful as food additives. Manufacture or import of cigarettes containing such ingredients is prohibited in Germany.

Since 1986, the six major cigarette manufacturers in the United States have annually provided the U.S. Department of Health and Human Services (DHHS) with lists of non-tobacco ingredients added to tobacco in the manufacture of cigarettes in the United States. These lists have been submitted pursuant to the requirements of the 1984 Federal Cigarette Labeling and Advertising Act. The DHHS is required to review the lists and prepare a report to the U.S. Congress on the health effects, if any, associated with the use of those ingredients. To date, five yearly lists have been submitted, although no report has been issued from the DHHS.⁴ Non-tobacco ingredients used in cigarette filters and paper are not included in the United States submissions. The German and Great Britain (ISCSH) lists, however, also regulate the use of non-tobacco ingredients in cigarette filters and paper.

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Legislation regulating non-tobacco ingredients has been slow to develop outside Europe. The absence of such legislation may well reflect the lack of any convincing evidence that the use of non-tobacco ingredients in cigarettes and other tobacco products has any deleterious effects on consumers.

CLAIMS CONCERNING HEALTH RISKS

Cigarette manufacturers and various government agencies have tested the major use ingredients through various bioassays such as the "Ames" test and, in some cases, have conducted animal studies of individual ingredients and combinations of ingredients. These tests typically involve two, five, or even 10 times or more than the amount of the ingredient used in a commercial cigarette. None of these studies indicate that the use of ingredients in cigarettes cause disease in smokers. Moreover, none of the substances currently used by the six major United States cigarette manufacturers are considered potential carcinogens by the National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC) or any other recognized organization which evaluates the toxicity of substances.

Furthermore, 19 of the 25 ingredients that comprise over 99% of the total amount, by weight, of the non-tobacco substances added to tobacco in cigarettes manufactured or sold in the U.S. are listed as "Generally Recognized as Safe" (GRAS) or otherwise approved for use as food additives by FEMA or the FDA. Twenty are approved by Great Britain's ISCSH for use in cigarettes at

prescribed levels. None are prohibited for use in cigarettes by any government ordinance.

LEGISLATIVE CONSIDERATIONS

Legislation regarding the use of ingredients in tobacco products creates a number of potential consequences which must be considered. Under some circumstances, such regulation could lead to restrictions on trade where it is particularly disadvantageous to one or another product type. Moreover, as noted earlier, disclosure of non-tobacco ingredients themselves presents a difficult issue, particularly with regard to recipes which may consist of complex, proprietary formulations developed and maintained as trade secrets by manufacturers in the tobacco industry, as well as the food and beverage industry. For example, the ingredient lists submitted to the DHHS are subject to strict confidentiality requirements which prevent their release or disclosure to the public or media and restrict the distribution of the list within the Department.⁵

Tobacco manufacturers and their suppliers fully understand the need to carefully monitor the materials used in their products and, in fact, maintain continuing review. There is no compelling evidence that indicates that the imposition of legislation or regulation in this area has any additional consumer benefit.

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